AEROJET ROCKETDYNE
The Rocket Company

7499 Pine Stake Road
Culpeper, VA 22701

Tel: 540-854-2037
Fax: 540-854-2002

March 30, 2016

Via FedEx

Mr. Luis A. Pizarro, Associate Director
Office of Remediation 3 LC20
Land and Chemicals Division
U.S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103

Re: Submittal of the One-hundred and second (102nd) Quarterly Air Monitoring Report Under RCRA RD&D Permit for Aerojet Rocketdyne's Orange County, Virginia Facility - EPA ID No. VAD981112618

Dear Mr. Pizarro:

This is the above-referenced one-hundred and second (102nd) quarterly air monitoring report for the period December 2015 – February 2016, the one-hundred and second (102nd) quarter of operation of Aerojet Rocketdyne's thermal treatment facility under the RCRA Research, Development, and Demonstration (RD&D) permit.

During this quarter, Aerojet Rocketdyne conducted one thermal treatment event (burn):

- December 8, 2015 (Burn 316A)

Burn 316A was the one-hundred-and-thirty-second (132nd) burn event since operation of the thermal treatment facility commenced under the permit.

As required by the permit, monitoring is conducted during each treatment event at one monitoring station located upwind of the thermal treatment facility and three monitoring stations located downwind. Monitoring is conducted for ammonia (NH3-N), hydrochloric acid (HCl), aluminum (Al), chromium (Cr), lead (Pb), carbon monoxide (CO), and total suspended particulates (TSPs).

WEATHER DATA:

Burn 316A

On the day of Burn 316A, the forecast was for mostly sunny skies, with light and variable winds from the north-west (NW), then north-northeast (NNE), and then changing over to the south (S) in the early afternoon (www.accuweather.com for Rhoadesville, VA). Initial conditions at the weather station (9:26 AM) were light winds at 1.9 meters/second (m/s) out of the NW (310°).

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When checked at 11:33 AM, the winds were still light at 2.5 m/s and out of the SW (220°). When checked again later at 1:16 PM and 3:00 PM, the winds were light at 2.8 and 2.6 m/s, and were out of the SSE, respectively (148° and 169°). With the wind predominantly out of the SSE (ranging from SSE to SSW), and predicted to remain out of the S for the afternoon, one upwind and three downwind air monitoring locations were selected. The upwind monitoring location selected was Site CC to the South of the thermal treatment facility (TTF). The three downwind locations selected were Sites EE, II, and HH, which are located to the NW, N, and NNE of the TTF, respectively (see map included as Attachment 1).

At the time of initiation of air monitoring (3:10 PM), the wind direction was out of the South (170°) and the wind speed was moderate at 4.0 m/s. At the time of thermal treatment unit ignition (3:30 PM), the wind direction was again out of the S (184°) and the wind speed was light at 1.9 m/s. The most direct downwind location during this period was Site II, which was monitored as a downwind location. At 20 minutes after the thermal treatment units were ignited (3:50 PM), the wind direction was out of the SSW (194°) and the wind speed was moderate at 3.8 m/s. The most direct downwind location during this period was Site HH, which was monitored as a downwind location. At 45 minutes after the thermal treatment units were ignited until air sampling was stopped (4:15 PM and 4:40 PM, respectively), the wind direction was out of the S and SSE, respectively (174° and 159°) and the wind speed was light at 2.2 m/s and 1.4 m/s, respectively. The most downwind locations during those periods were Sites II and EE, which were monitored as downwind locations. Weather data for the date/time of the burn/monitoring event is included in Attachment 2.

MONITORING DATA:

Burn 316A

The statistical evaluation for the thermal treatment event conducted on December 8, 2015 (Burn 316A) indicated that the downwind locations sampled were in the same statistical population as the upwind location sampled, with all downwind results estimated not likely to exceed the background/upwind location or not significant because the constituents were below detection limits for all parameters (see Attachment 3 for details). Based on a review of the data and information for Burn 316A, Aerojet Rocketdyne believes that it is conclusive that air quality was not adversely impacted for monitoring parameters ammonia (NH3N), hydrochloric acid (HCl), aluminum (Al), chromium (Cr), lead (Pb), total suspended particulates (TSP), and carbon monoxide (CO).

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Should you have any questions or comments concerning this quarterly air monitoring report, please contact me at 540-854-2037 or tim.holden@Rocket.com .

Sincerely,

AEROJET ROCKETDYNE, INC.
Virginia Operations

Timothy E. Holden
Sr. Manager – Safety, Health & Environment
Principal Investigator

ATT

cc: Leslie Romanchik, VDEQ/Waste Division
Alma Banks, VDEQ/Air Division
Richard Doucette, VDEQ/NRO
Brian Wheatley, Aerojet Rocketdyne
Bill Schwennesen, Aerojet Rocketdyne
Clarkson Meredith, Versar

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March 30, 2015

CERTIFICATION LETTER

Dear Sir:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

The document certified by this letter is the "One-hundred and second (102nd) Quarterly Air Monitoring Report Under RCRA RD&D Permit for Aerojet Rocketdyne, Inc.'s Orange County, Virginia Facility", RD&D Permit - EPA ID No. VAD981112618, dated March 30, 2016.

Sincerely,

AEROJET ROCKETDYNE, INC.

(BRIAN WHEATLEY - FOR)

Chris W. Conley
Vice President of Safety, Health & Environment

AEROJET ROCKETDYNE

Ideas Powering Freedom

Memo

June 1, 2015

To: Brian Wheatley

From: Chris W. Conley
Vice President, Environmental Health and Safety

Subject: Delegation of Authority

Copies: Brian Sweeney, Chris Cambria, William Hvidsten, Ron Felix, Tom Cadwell, Tim Holden, David Rymph, Ron Sherer, Jan DeMeulenaere

Reference: (a) Memorandum, Chairman of the Board, Aerojet-General Corporation, to President, Aerojet-General Corporation, dated January 7, 1985
(b) Memorandum, Office of the President, Aerojet-General Corporation, to Vice President, Environmental Health and Safety, Aerojet-General Corporation, dated October 21, 2008

Pursuant to the delegation of authority established by reference (a) and (b), authority is further re-delegated to Brian Wheatley to execute all agreements and documents related to permit applications, reports or other information submitted to regulatory agencies on behalf of Aerojet Rocketdyne, Inc. and pertaining to its Environmental, Health and Safety functions at the Orange, VA facility.

This authority does not extend to documents expressly requiring a Aerojet Rocketdyne Holdings, Inc. Corporate Officer's signature and is subject to legal or other reviews and approvals required by Aerojet Rocketdyne Holdings, Inc. and Aerojet Rocketdyne Leadership Media. This supersedes all previous delegations that you may have received relative to signature authority on third party documents.

This authority may be re-delegated subject to such limitations as deemed advisable. Please make all subsequent delegations in duplicate originals, furnishing one to the addressee and one to the Aerojet Rocketdyne Legal Department.

Chris W. Conley
Vice President
Environmental Health and Safety

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Attachment 1

Aerojet Rocketdyne, Inc.
Orange County, Virginia

AIR MONITORING LOCATION MAPS

Thermal Treatment Event 316A
December 8, 2015

Burn Event 316A

12/8/15

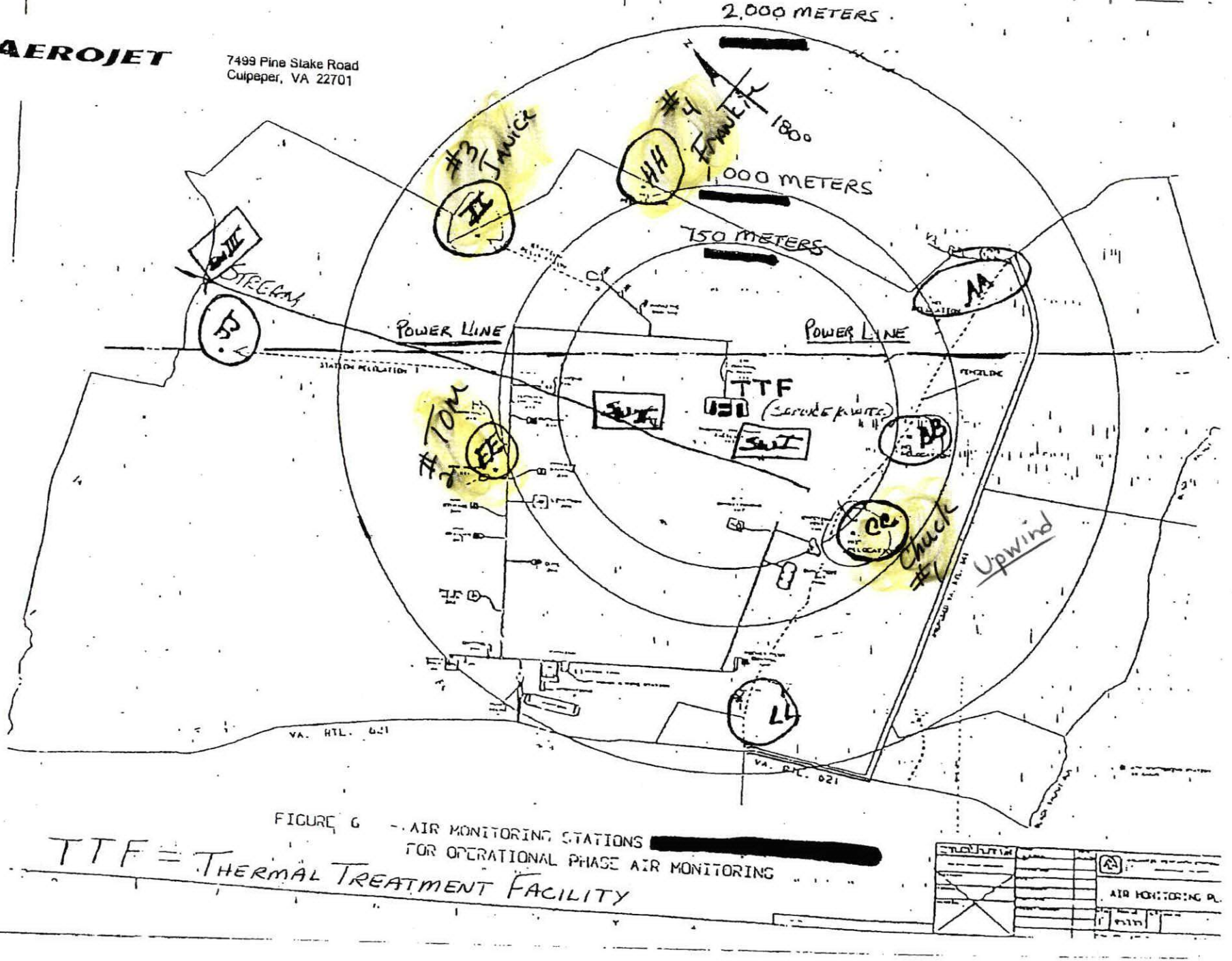

FIGURE 6 -- AIR MONITORING STATIONS [redacted]
FOR OPERATIONAL PHASE AIR MONITORING

TTF = THERMAL TREATMENT FACILITY

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Attachment 2

Aerojet Rocketdyne, Inc.
Orange County, Virginia

WEATHER STATION DATA

Thermal Treatment Event 316A
December 8, 2015

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Thermal Treatment Event 316A – December 8, 2015:

TIME (EDT)	WIND SPEED (m/s)	WIND DIRECTION (°; avg.)	TEMP.(°C)	COMMENTS
09:26	1.9	310	9.4	NW
11:33	1.4	220	11.9	SW
13:16	2.8	148	12.1	SSE
15:00	2.6	169	12.2	SSE
15:10 (T-20)	4.0	170	12.8	S
15:30 (T)	1.9	184	13.1	S
15:50 (T+20)	3.8	194	13.6	SSW
16:15 (T+45)	2.2	174	12.7	S
16:40 (T+70)	1.4	159	12.1	SSE

Air Sampling Initiated (T-20): 3:10 PM
Thermal Treatment Units Ignited (**T**): **3:30 PM**
Air Sampling Completed (T+70): 4:40 PM

DURN SIGN
12/8/15

Julian Day
342

106	2000	341	1915	1.211	212.7	10.66	10.41	
106	2000	341	1930	1.324	218.9	8.74	10.11	
106	2000	341	1945	1.739	210.4	6.424	10.1	
106	2000	341	2000	1.638	219.5	12.7	10.12	
111	2000	341	2000	1.478	215.4	10.64	10.18	12.7
106	2000	341	2015	1.676	193.5	8.39	10.1	
106	2000	341	2030	1.281	195.9	6.495	10.04	
106	2000	341	2045	.849	198.3	9.76	9.98	
106	2000	341	2100	1.094	176.9	10.89	9.95	
111	2000	341	2100	1.225	191.2	12.32	10.02	12.68
106	2000	341	2115	1.455	200	6.225	9.78	
106	2000	341	2130	1.727	209.6	10.81	9.78	
106	2000	341	2145	1.54	229.6	10.78	9.86	
106	2000	341	2200	1.032	243.7	8.68	9.91	
111	2000	341	2200	1.438	220.7	19.45	9.83	12.66
106	2000	341	2215	.768	220.6	17.81	10	
106	2000	341	2230	1.168	45.22	43.15	9.65	
106	2000	341	2245	1.701	55.11	6.995	9.27	
106	2000	341	2300	1.446	62.65	14.23	8.74	
111	2000	341	2300	1.271	62.72	70.5	9.41	12.64
106	2000	341	2315	.841	97.7	40.68	8.47	
106	2000	341	2330	1.007	92.9	26.42	8.38	
106	2000	341	2345	.964	98.1	16.93	8.41	
106	2000	342	0	.509	253.5	30.89	7.35	
111	2000	342	0	.83	106.5	68.94	8.15	12.6
106	2000	342	15	.187	23.57	93	6.902	
106	2000	342	30	.186	190.3	19.26	6.427	
106	2000	342	45	.49	205.7	33.63	6.175	
106	2000	342	100	.4	269	27.14	5.627	
111	2000	342	100	.316	221.2	64.52	6.283	12.58
106	2000	342	115	.183	232.3	32.29	5.398	
106	2000	342	130	.183	65.88	74.1	5.823	
106	2000	342	145	.184	332.9	49.35	5.09	
106	2000	342	200	.186	182.9	17.59	5.602	
111	2000	342	200	.184	223.7	86.8	5.478	12.54
106	2000	342	215	.19	199.5	9.85	5.572	
106	2000	342	230	.523	194.3	59.49	5.73	
106	2000	342	245	.197	44.42	34.89	6.134	
106	2000	342	300	.199	271.8	19.82	4.76	
111	2000	342	300	.277	223.9	82.3	5.549	12.52
106	2000	342	315	.199	271.9	12.45	4.172	
106	2000	342	330	.315	235.1	19.03	4.239	
106	2000	342	345	.402	236.4	12.97	4.793	
106	2000	342	400	.199	246.4	22.84	5.246	
111	2000	342	400	.279	247.4	22.83	4.613	12.51
106	2000	342	415	.199	286.1	41.36	5.434	
106	2000	342	430	.583	35.8	13.1	7.06	
106	2000	342	445	1.174	42.78	12.91	7.1	
106	2000	342	500	.991	34.96	22.48	6.6	
111	2000	342	500	.737	22.45	50.95	6.55	12.5
106	2000	342	515	.914	14.53	61.03	5.71	
106	2000	342	530	1.218	297.5	17.89	4.323	
106	2000	342	545	.272	310.8	55.73	3.941	
106	2000	342	600	.496	175	30.58	3.533	

111	2000	342	600	.725	295.4	82	4.377	12.48
106	2000	342	615	.895	205.8	11.2	3.191	
106	2000	342	630	.623	203.8	18.59	3.855	
106	2000	342	645	.574	163.3	25.02	4.411	
106	2000	342	700	.869	152.2	9.76	4.227	
111	2000	342	700	.74	181.5	29.65	3.921	12.48
106	2000	342	715	.93	159.8	11.39	3.944	
106	2000	342	730	.289	187.8	22.13	3.785	
106	2000	342	745	.183	138.2	83.6	3.777	
106	2000	342	800	.162	114.7	25.68	4.727	
111	2000	342	800	.391	153.3	50.09	4.058	14.5
106	2000	342	815	.637	96.9	19.34	4.768	
106	2000	342	830	.213	275.3	33.9	4.487	
106	2000	342	845	.184	198.5	33.99	5.817	
106	2000	342	900	.185	193.8	51.92	8.2	
111	2000	342	900	.304	192.3	76.3	5.817	13.28
106	2000	342	915	.182	279.8	18.41	8.1	
106	2000	342	930	.186	291.6	20.52	8.73	
106	2000	342	945	.328	285.5	42.61	10.41	
106	2000	342	1000	1.352	47.23	49.74	9.7	
111	2000	342	1000	.512	299.9	58.49	9.24	13.11
106	2000	342	1015	2.196	97.8	19.09	9.32	
106	2000	342	1030	1.843	98	18.68	9.59	
106	2000	342	1045	1.633	101.3	27.34	10.19	
106	2000	342	1100	1.72	117.3	19.65	10.39	
111	2000	342	1100	1.848	103.6	22.9	9.87	13.08
106	2000	342	1115	1.614	136.1	41.94	10.9	
106	2000	342	1130	1.548	164.2	48.46	11.45	
106	2000	342	1145	1.23	166.1	65.3	12.05	
106	2000	342	1200	1.229	272.6	96.2	12.08	
111	2000	342	1200	1.405	156.9	69.02	11.62	12.95
106	2000	342	1215	1.283	286.1	40.97	12.37	
106	2000	342	1230	1.629	244.6	15.45	12.8	
106	2000	342	1245	2.091	199.6	30.98	12.9	
106	2000	342	1300	1.442	145.9	24.17	12.39	
111	2000	342	1300	1.611	218.2	60.64	12.62	12.99
106	2000	342	1315	2.329	174	21.3	12.38	
106	2000	342	1330	2.208	156.4	19.1	12.42	
106	2000	342	1345	1.877	139	20.48	12.25	
106	2000	342	1400	1.711	202.9	34.15	13.37	
111	2000	342	1400	2.031	166.8	33.67	12.6	13.08
106	2000	342	1415	2.515	188.3	47.18	13.1	
106	2000	342	1430	2.56	197	15.39	13.33	
106	2000	342	1445	3.283	191.4	20.45	13.21	
106	2000	342	1500	2.705	199.6	23.61	13.18	
111	2000	342	1500	2.766	194.5	28.83	13.21	13.14
106	2000	342	1515	3.132	170.8	18.65	13.03	
106	2000	342	1530	2.668	180.4	14.81	12.98	
106	2000	342	1545	2.423	189.2	19.05	12.84	
106	2000	342	1600	3.071	201.9	18.09	13.04	
111	2000	342	1600	2.823	185.6	21.07	12.97	13.58
106	2000	342	1615	2.269	165.2	9.62	12.72	
106	2000	342	1630	1.562	162.3	7.81	12.5	
106	2000	342	1645	1.242	158.8	6.802	12.12	

Time of air monitoring for 316A

106	2000	342	1700	1.105	169.5	12.77	11.67	
111	2000	342	1700	1.544	163.9	10.28	12.25	12.9
106	2000	342	1715	1.515	180.2	18.08	11.24	
106	2000	342	1730	1.752	161.7	4.776	11.23	
106	2000	342	1745	2.047	162.1	5.004	11	
106	2000	342	1800	1.652	159.7	5.475	10.78	
111	2000	342	1800	1.742	165.7	12.91	11.06	12.8
106	2000	342	1815	1.638	163.4	7.38	10.47	
106	2000	342	1830	1.906	165.2	4.952	10.51	
106	2000	342	1845	1.78	165.8	4.886	10.08	
106	2000	342	1900	1.816	158.2	10.74	9.9	
111	2000	342	1900	1.785	163.1	7.96	10.24	12.75
106	2000	342	1915	2.184	140.1	5.211	9.22	
106	2000	342	1930	2.656	140.1	7.1	8.92	
106	2000	342	1945	2.754	145.6	4.652	8.53	
106	2000	342	2000	2.683	149.6	4.631	8.27	
111	2000	342	2000	2.569	143.9	6.792	8.73	12.72
106	2000	342	2015	2.55	145.7	5.729	7.8	
106	2000	342	2030	2.694	147.6	5.695	7.67	
106	2000	342	2045	2.703	153.1	5.29	7.45	
106	2000	342	2100	2.514	154.3	4.68	7.37	
111	2000	342	2100	2.615	150.2	6.478	7.57	12.69
106	2000	342	2115	2.8	152.4	4.355	7.29	
106	2000	342	2130	2.535	155	4.522	7.15	
106	2000	342	2145	2.888	159	4.692	7.14	
106	2000	342	2200	2.345	165.7	6.279	6.931	
111	2000	342	2200	2.642	158	7.09	7.13	12.67
106	2000	342	2215	1.691	184.6	7.2	6.591	
106	2000	342	2230	1.615	180.5	5.424	6.47	
106	2000	342	2245	1.109	169.2	7.1	6.254	
106	2000	342	2300	1.146	185.9	10.19	5.983	
111	2000	342	2300	1.39	180	10.1	6.324	12.65
106	2000	342	2315	1.442	192	6.832	6.008	
106	2000	342	2330	1.945	176.4	6.792	5.917	
106	2000	342	2345	2.305	175.9	6.366	5.871	
106	2000	343	0	2.304	183.1	4.707	5.861	
111	2000	343	0	1.999	181.8	8.99	5.914	12.63
106	2000	343	15	2.742	178	5.957	5.95	
106	2000	343	30	2.349	169.3	6.377	5.805	
106	2000	343	45	1.433	161.7	9.59	5.397	
106	2000	343	100	1.843	163	6.763	5.211	
111	2000	343	100	2.092	168	9.76	5.591	12.62
106	2000	343	115	1.579	170.2	7.43	4.758	
106	2000	343	130	1.284	181.3	12.71	4.268	
106	2000	343	145	1.266	167.9	11.73	3.913	
106	2000	343	200	1.639	162	5.915	4.336	
111	2000	343	200	1.442	170.3	12.08	4.319	12.6
106	2000	343	215	1.78	170.4	7.45	3.909	
106	2000	343	230	1.946	174.6	6.621	4.096	
106	2000	343	245	1.06	172.6	7.87	3.668	
106	2000	343	300	1.128	172.1	10.01	3.431	
111	2000	343	300	1.479	172.4	8.22	3.776	12.57
106	2000	343	315	.504	209.8	40.49	3.016	
106	2000	343	330	.199	238.7	25.2	3.267	

1 - 5 of 45 days | All 45 days Next 5 >

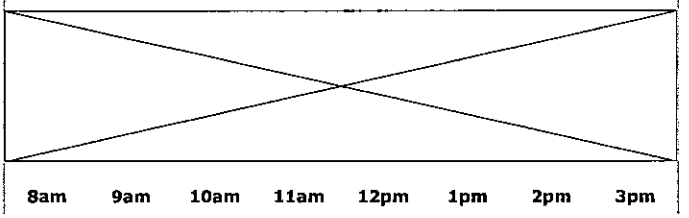
Today	Wed	Thu	Fri	Sat
Dec 8	Dec 9	Dec 10	Dec 11	Dec 12
Mostly sunny	Sun mixing with clouds	Mild with clouds and sun	Mostly sunny, nice and warm	Pleasant with clouds and sun
56° Lo 34°	56° Lo 39°	61° Lo 40°	64° Lo 42°	67° Lo 47°
more	more	more	more	more

Now Daily **Hourly** Morning Afternoon Evening Overnight

	Tue 8am	9am	10am	11am	12pm	1pm	2pm	3pm
Forecast	Mostly Sunny	Sunny	Sunny	Mostly Sunny	Mostly Sunny	Mostly Sunny	Mostly Sunny	Mostly Sunny
Temp (°F)	38°	42°	45°	48°	51°	54°	56°	55°
RealFeel®	42°	46°	50°	55°	58°	60°	61°	58°
Humidity	91%	79%	76%	74%	64%	56%	49%	51%

	8am	9am	10am	11am	12pm	1pm	2pm	3pm
Rain	0%	0%	0%	0%	0%	0%	0%	0%
Snow	0%	0%	0%	0%	0%	0%	0%	0%
Ice	0%	0%	0%	0%	0%	0%	0%	0%

	8am	9am	10am	11am	12pm	1pm	2pm	3pm
Wind (mph)	1 NW	2 NW	2 NW	2 NNW	2 NNE	1 S	2 S	2 S
UV Index	0	1	1	2	2	2	1	1
Cloud Cover	17%	5%	9%	16%	21%	25%	23%	22%
Dew Point	36°	36°	38°	40°	39°	38°	37°	37°



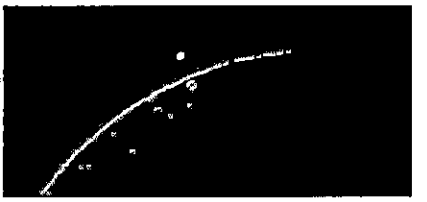
< Previous 8 hours Next 8 hours >

Temperature History - Dec 8 more Historical Weather Data >

Trending Now

WATCH: Police Save Buck From Drowning In Frozen River

VIDEO: Teens Perform Dangerous Dives Into Sea Amid Storm Desmond



PHOTOS: Venus Vanishes Behind the Moon in Monday Sky

Monday gave people the opportunity to watch the moon pass in front of Venus during broad daylight across North America.

Read Story >

El Nino to Blame for Eastern US Snow Drought

An El Nino pattern is expected to funnel mild air into the East through the start of 2016, allowing the snow drought to continue for major East Coast cities.

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1 - 5 of 45 days | All 45 days Next 5 >

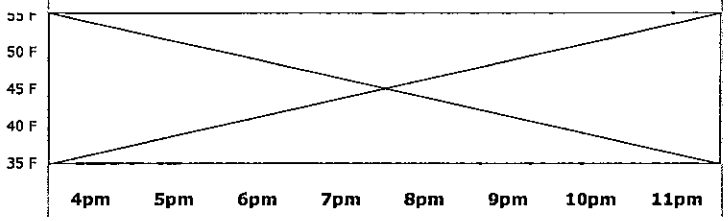
Today Dec 8	Wed Dec 9	Thu Dec 10	Fri Dec 11	Sat Dec 12
Mostly sunny	Sun mixing with clouds	Mild with clouds and sun	Mostly sunny, nice and warm	Pleasant with clouds and sun
56° Lo 34°	56° Lo 39° more	61° Lo 40° more	64° Lo 42° more	67° Lo 47° more

Now Daily **Hourly** Morning Afternoon Evening Overnight

	Tue 4pm	5pm	6pm	7pm	8pm	9pm	10pm	11pm
Forecast	Mostly Sunny	Partly Cloudy	Cloudy	Mostly Clear	Mostly Clear	Mostly Clear	Mostly Clear	Mostly Clear
Temp (°F)	52°	49°	47°	45°	44°	43°	42°	40°
RealFeel®	54°	51°	48°	46°	45°	44°	43°	42°
Humidity	58%	68%	80%	82%	90%	91%	98%	100%

	4pm	5pm	6pm	7pm	8pm	9pm	10pm	11pm
Rain	0%	0%	0%	0%	0%	0%	0%	0%
Snow	0%	0%	0%	0%	0%	0%	0%	0%
Ice	0%	0%	0%	0%	0%	0%	0%	0%

	4pm	5pm	6pm	7pm	8pm	9pm	10pm	11pm
Wind (mph)	2 S	1 S	2 SSE	2 SE	2 SSE	2 SSE	2 SSE	2 SSE
UV Index	0	0	0	0	0	0	0	0
Cloud Cover	25%	37%	52%	10%	10%	10%	10%	10%
Dew Point	38°	39°	41°	40°	41°	40°	41°	40°



< Previous 8 hours Next 8 hours >

Temperature History - Dec 8 more Historical Weather Data >

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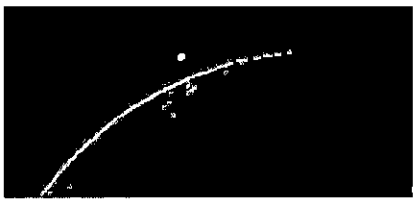
WATCH: Police Save Buck From Drowning in Frozen River

VIDEO: Teens Perform Dangerous Dives Into Sea Amid Storm Desmond



PHOTOS: Venus Vanishes Behind the Moon in Monday Sky

Monday gave people the opportunity to watch the moon pass in front of Venus during broad daylight across North America.

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El Nino to Blame for Eastern US Snow Drought

An El Nino pattern is expected to funnel mild air into the East through the start of 2016, allowing the snow drought to continue for major East Coast cities.

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AEROJET ROCKETDYNE
The Rocket Company

7499 Pine Stake Road
Culpeper, VA 22701

Tel: 540-854-2037
Fax: 540-854-2002

Attachment 3

Aerojet Rocketdyne, Inc.
Orange County, Virginia

Monitoring Results & Statistical Evaluation

Thermal Treatment Event 316A
December 8, 2015

March 17, 2016

Mr. Tim Holden
Environmental Manager
Aerojet Corporation
7499 Pine Stake Road
Culpeper, VA 20155

Subject: Burns 316A Statistical Report, Versar Project No. 112133

Dear Mr. Holden:

Enclosed please find General Chemistry Results and Statistical Evaluations for Burn 313A conducted on December 8, 2016. All results were estimated as not likely to exceed background or as not significant because the constituents were not detected (e.g., hydrogen chloride).

Should you have any questions, please do not hesitate to contact me at (703) 642-6842.

Sincerely,

H. Clarkson Meredith, III
Project Manager
Springfield Environmental Services Group

Enclr.

VERSAR
6850 Versar Center
Springfield, VA 22151
703.750.3000
www.versar.com

AEROJET CORP., ORANGE COUNTY FACILITY
Burn 316A - Statistical Evaluation
December 8, 2015

BURN 316A RAW FIELD DATA AND LABORATORY RESULTS

SAMPLE NUMBER	SAMPLE LOCATION	NH3-N (ug/sample)	HCl in air (ug/sample)	Al (ug/sample)	Cr (ug/sample)	Pb (ug/sample)	CO (ppm)	Total Suspended Particulates (TSP) (mg) after	(mg) before	(mg/sample) mass
CC-316A	Upwind	4.34	5 <	74.8	0.195	1.51 <	0.48	4,570.0	4,569.2	0.8
EE-316A	Downwind	4.54	5 <	82.3	0.264	1.53 <	0.52	4,561.9	4,560.4	1.5
II-316A	Downwind	14.80	5 <	45.1	0.186 <	1.49 <	0.55	4,546.7	4,545.7	1.0
HH-316A	Downwind	17.70	5 <	47.6	0.196	1.52 <	1.36	4,554.6	4,553.6	1.0

		NH3-N VOLUMES (L)	HCl in air VOLUMES (L)	Metals & TSP VOLUMES (ft^3)	CO Volumes (L)
CC-316A	Upwind	18.216	36.234	3,600	8.9946
EE-316A	Downwind	18.234	36.234	3,600	8.9946
II-316A	Downwind	18.324	36.216	3,600	8.9946
HH-316A	Downwind	18.252	36.270	3,600	8.9964

< - Denotes constituent not detected. Value is the analytical reporting limit.

AEROJET CORP., ORANGE COUNTY FACILITY
Burn 316A - Statistical Evaluation
December 8, 2015

SAMPLE NUMBER	SAMPLE LOCATION	NH3-N (ug/m3)		HCl in air (ug/m3)	Al (ug/m3)	Cr (ug/m3)		Pb (ug/m3)	CO (ppm)	TSP (ug/m3)
BURN 316A										
CC-316A	Upwind	238.3	<	138.0	0.73	0.002	<	0.00742	0.48	7.9
EE-316A	Downwind	249.0	<	138.0	0.81	0.003	<	0.00752	0.52	14.7
II-316A	Downwind	807.7	<	138.1	0.44	< 0.002	<	0.00732	0.55	9.8
HH-316A	Downwind	969.8	<	137.9	0.47	0.002	<	0.00747	1.36	9.8

NOTES:
< = Not detected.

	NH3-N	HCl in air	Al	Cr	Pb	CO	TSP
COUNT:	3	3	3	3	3	3	3
MEAN DOWNWIND CONC.:	675	69.0	0.57	0.00	0.0037	0.810	11.5
STANDARD DEVIATION:	309	0.04	0.17	0.000	0.0001	0.389	2.3
SQRT(N+1/n):	1.15	1.15	1.15	1.15	1.15	1.15	1.15
SAMPLE t VALUE:	1.23	0.23	0.84	0.51	0.1	0.73	1.35
DEGREE OF FREEDOM:	2	2	2	2	2	2	2
CRITICAL t VALUE:	6.965	6.965	6.965	6.965	6.965	6.965	6.965
COMMENTS:	NOT SIGN	*NOT SIGN	NOT SIGN	NOT SIGN	*NOT SIGN	NOT SIGN	NOT SIGN

NOTES:
NOT SIGN = Not Significant. Population mean of downwind concentrations likely does not exceed upwind concentrations.
*NOT SIGN = Not Significant. All downwind samples results were below the reporting limit.
SIGNIFICANT = Population mean of downwind concentrations likely exceeds the upwind concentration.